

THE  
**KOOTENAY VALLEYS**

IN  
Kootenay District,  
**BRITISH COLUMBIA.**

BY  
WM. A. BAILLIE-GROHMAN.

*K. C. E. H., J. P.*

*With ONE MAP.*

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1886.

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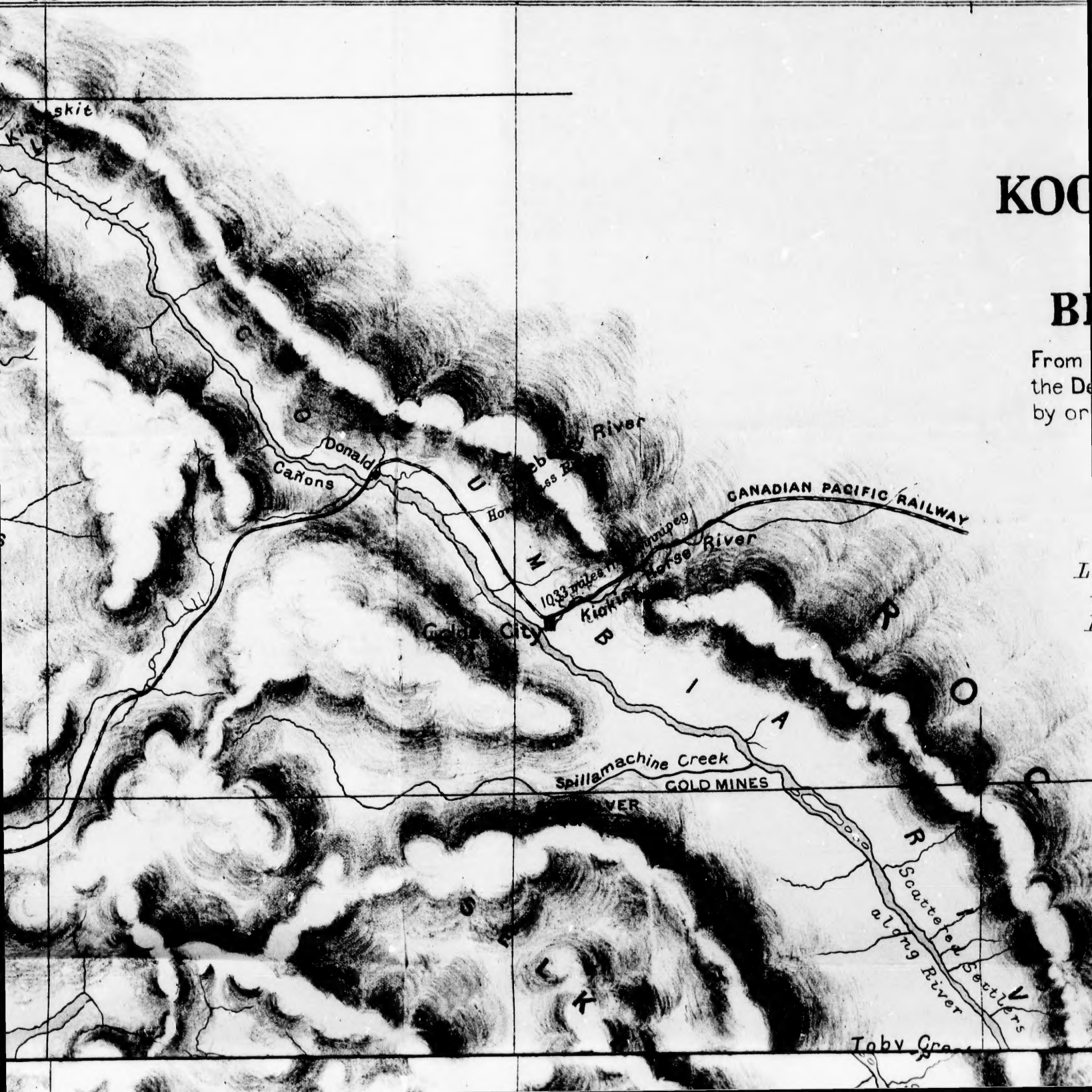
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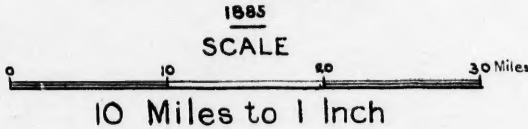
MAP  
OF THE

# KOOTENAY DISTRICT

IN

## BRITISH COLUMBIA

From the specially prepared map compiled in  
the Department of Lands and Works, Victoria B.C.  
by order of Hon<sup>ble</sup> W<sup>m</sup> Smithe Chief Com<sup>r</sup> of  
Lands and Works

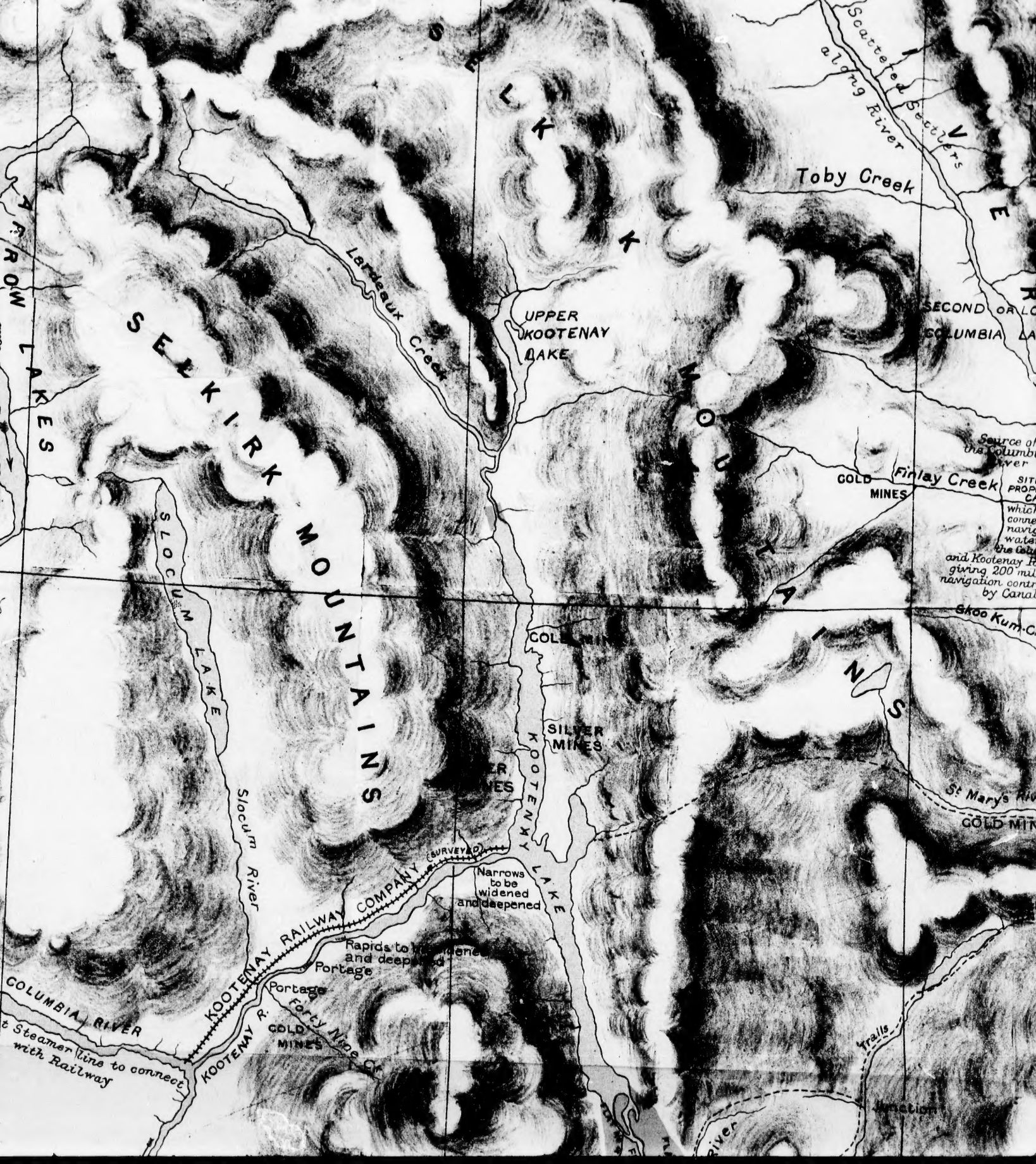


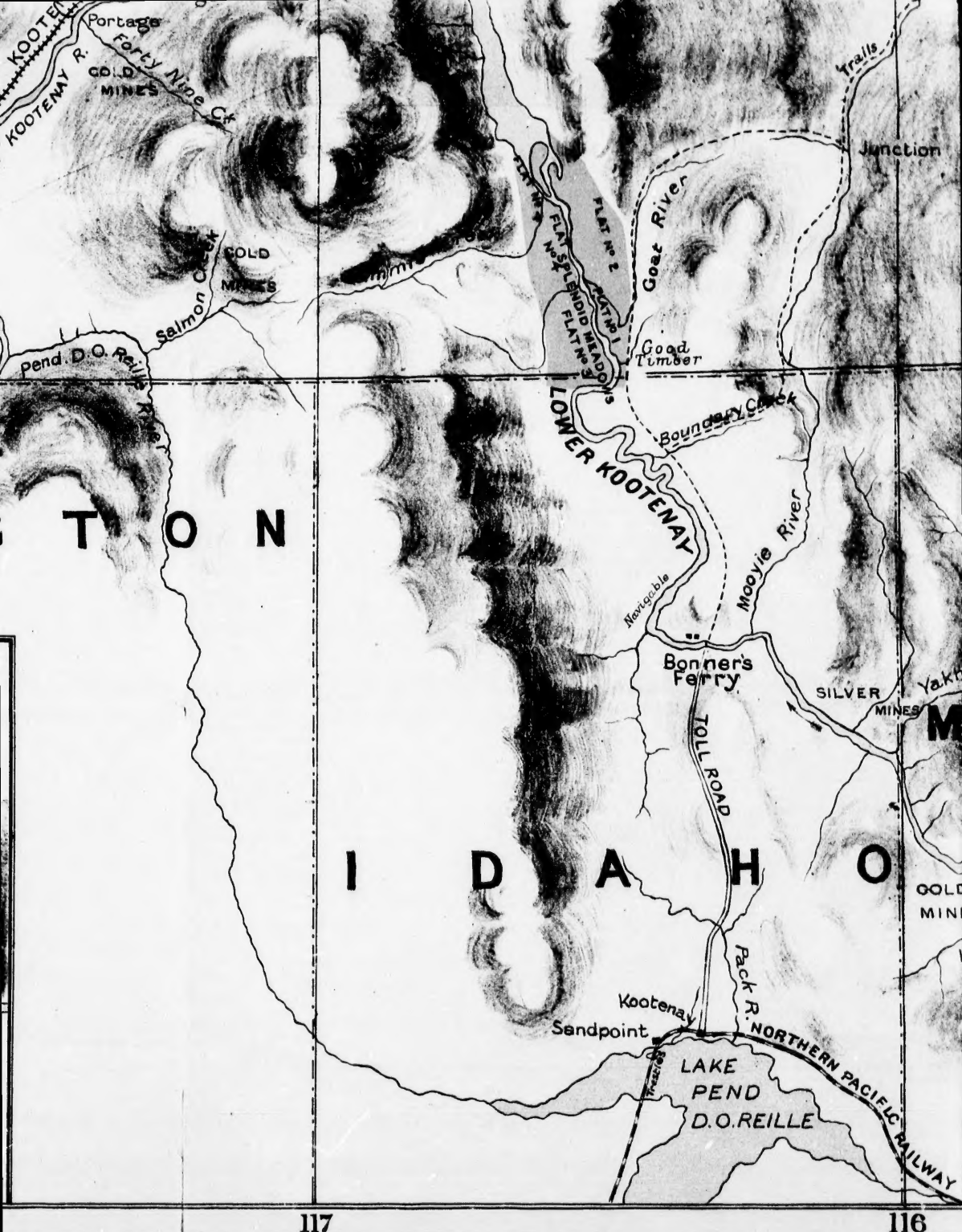
*Lands covered by the Government Concession  
to the Kootenay Syndicate (Lim) of  
London (England) thus : —*

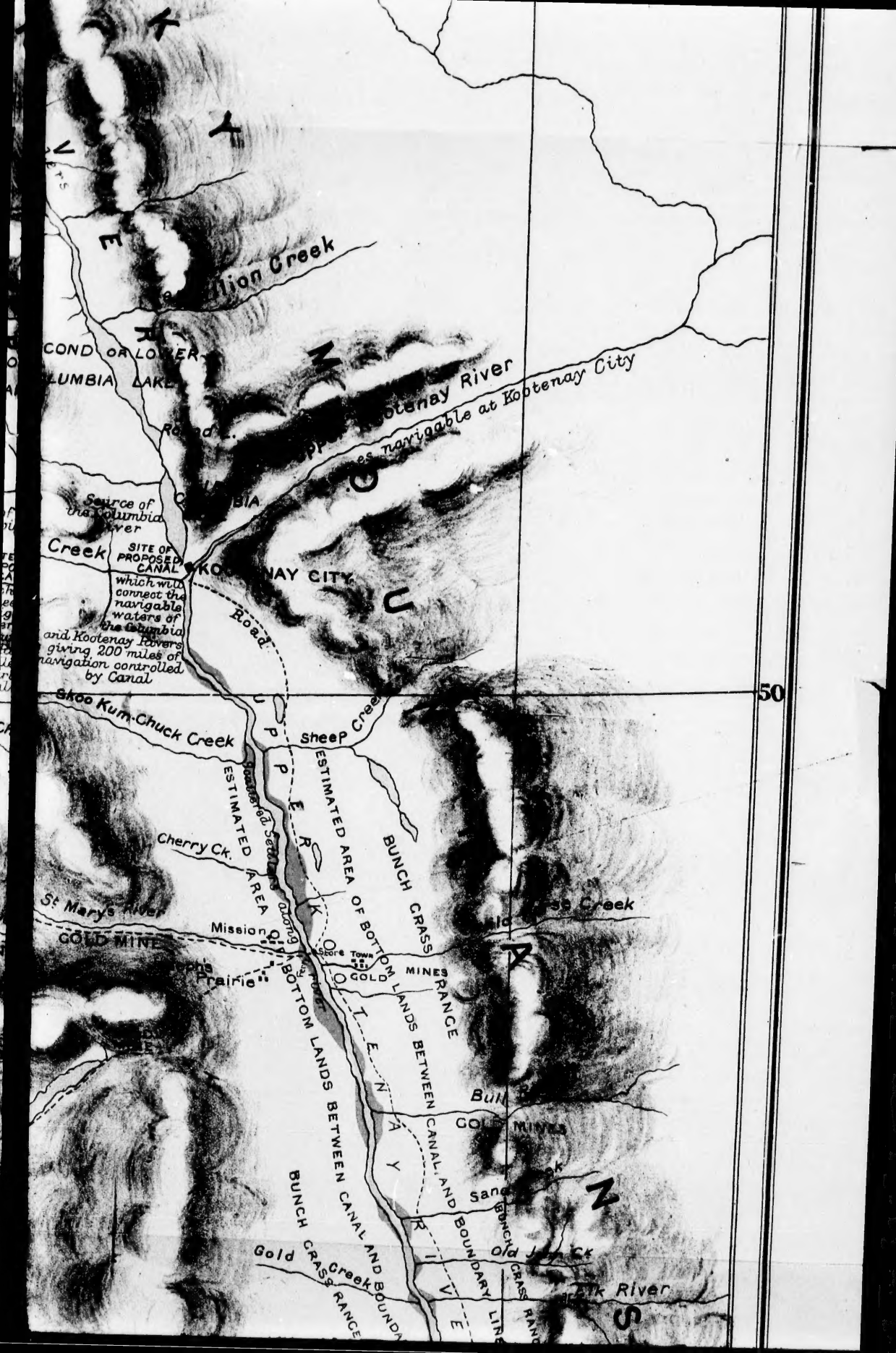




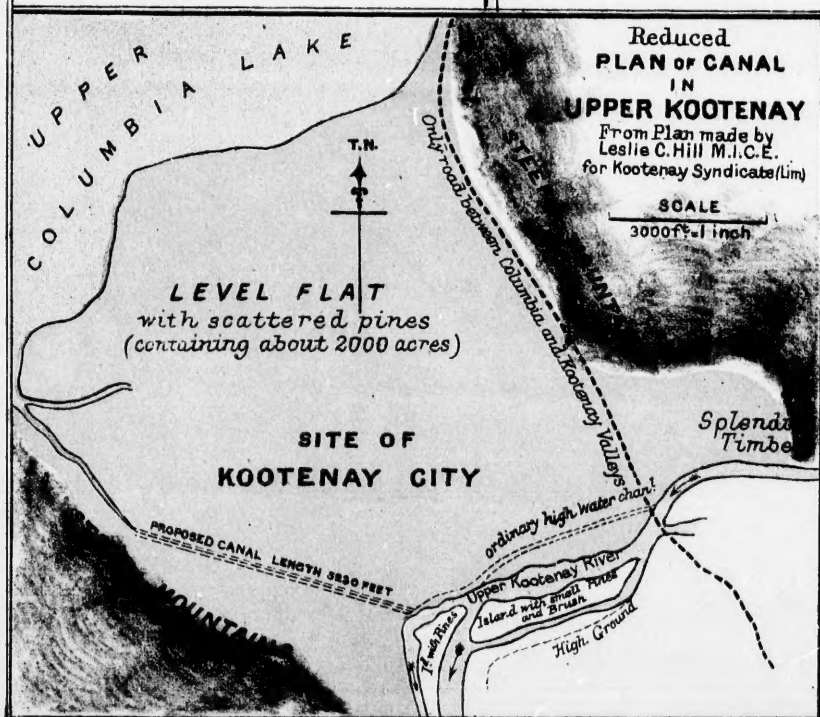


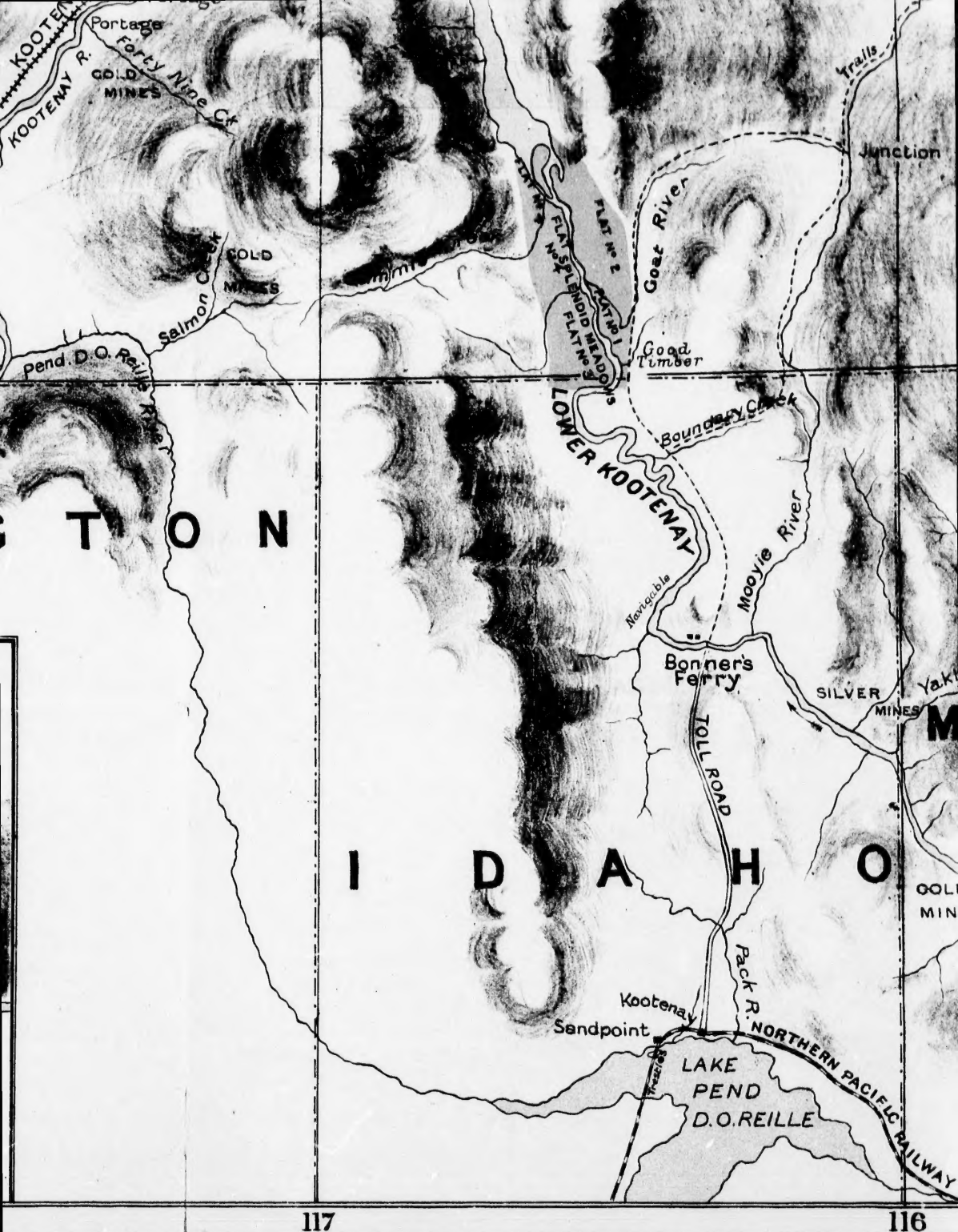
















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Mr. W. A. BAILLIE-GROHMAN'S

## DESCRIPTIVE REPORT

ON THE

# KOOTENAY VALLEYS IN BRITISH COLUMBIA,

AND THE

73,025 ACRES OF AGRICULTURAL AND FOREST LAND

Secured to the KOOTENAY SYNDICATE (Limited) by a Special PARTIALLY FREE GRANT from the Government of British Columbia.

**Geographical Position.**—Kootenay District lies in the South-Eastern corner of British Columbia, and is separated from the North-Western Territories of Canada by the Rocky Mountains. In shape the Kootenay District is not unlike a huge triangle, with a base line of some 150 miles resting on the 49° N. lat., which forms the international boundary line separating this portion of British Columbia from the three great western Territories of the United States; i.e., Montana, Idaho, and Washington. The western side of the triangle is formed by the rugged Gold Range, while towards the east the Rocky Mountains form an equally well-defined natural frontier. The district covers an immense area, the extent of which can best be realised by remembering that while the base line is about 150 miles, the other sides of the triangle are 300 miles long.

The centre of this triangular district is occupied by a separate chain of mountains; i.e., the Selkirks, now attracting attention as the scene of great engineering feats, by which the Canadian Pacific Railway has completed its track from the Atlantic to the Pacific Ocean, bringing the latter within a 10 or 11 days' journey from London.

The Selkirks are a range of mountains in shape not unlike a horseshoe, with the open end towards the south. Inside this horseshoe we observe one of the three great valleys of the Kootenay District, namely, the Lower Kootenay Valley; while the two remaining ones, the Upper Kootenay valley and the Columbia valley, run round the outside of the horseshoe, isolating the Selkirks from the Rocky Mountains and from the Gold Range.

The Upper Kootenay Valley is formed by the Kootenay River, and commences at what is known as the Canal flat, where the river first emerges from the Rocky Mountains, in the inaccessible recesses of which, 100 miles away, it has its source, and it ends where the river in its southward course crosses the international boundary line and enters United States territory, a distance of about 90 miles. The valley for its whole length lies at the very foot of the abruptly rising main chain of the Rocky Mountains, which run parallel with the Kootenay River while the latter is on British soil. The Rockies are here very different to the rounded, hill-like mountains rising in the monotonously gradual slopes from the arid and elevated plains of Montana, Wyoming, and Colorado, which one sees on the familiar Trans-Continental routes across the United States. This great range, seen from Kootenay District, is of very bold and grand appearance; its pinnacles rise sharply and to great altitudes from the sunny, beautifully-wooded valley at its feet, where wide, park-like stretches of meadow land, small lakes, and grand forests, combine in producing an attractive

pastoral picture, unlike, I may say, anything I have ever seen on the North American Continent. The valleys in the district are all much lower than the somewhat exposed plains east of the Rocky Mountains; their elevation above the sea varying between 1050 and 2546\* feet. As it is perhaps hardly necessary to point out, this great wall of mountains, towering 9000 or 10,000 feet over the valley, forms not only an incomparable shelter against the freezing east and north winds which make the bleak elevated plains on the other side of the Rocky Mountains their playground, but also acts as a most desirable "catch," arresting the warm Pacific Ocean breezes, also known as the Chinook, which on striking this formidable wall are deflected downwards into the valley to play havoc with the snow. The absence of deep snow—a circumstance to which all travellers who in past years have visited the Upper Kootenay Valley revert—is explained by this favourable configuration, causing it also to be a long-known favourite wintering ground for the Kootenay Indians, who, in this valley, raise large bands of fine horses, some cattle, and, in their desultory way, also some wheat and vegetables, the chief part of the farming work being, however, done by the missionaries and their assistants.

An interesting Parliamentary Blue Book gives us important information about the Kootenay country, important because the source is an entirely authoritative one. I am referring to CAPTAIN PALLISER'S REPORT UPON THE EXPLOitation OF BRITISH NORTH AMERICA, presented to Parliament in 1863, embracing in four volumes his own report and those of several men of science specially chosen and sent out under the auspices of Sir Roderick Murchison and Sir William Hooker. The expedition lasted almost four years, and some of the chief members passed two winters at the several Hudson Bay Company's posts adjacent to Kootenay District.

The report in question contains numerous references to the superior breed of horses raised by the Kootenay Indians, and to the winter climate of that valley, which latter bear out my own impressions and that of others regarding its much greater mildness, in comparison to that of the North-West, Manitoba, and Montana, east of the Rocky Mountains.

Captain Palliser says: "In Wide Valley (Upper Kootenay Valley) large bands of horses are kept without the slightest danger from the snow throughout the whole winter." Further on, the Blue Book, when referring to the Upper Kootenay Valley, contains the following passage: "Here the Kootenays raise the enormous bands of horses for which they are famous amongst all other Indians, the dry soil and nutritious bunch grass producing a breed of superior hardihood and swiftness." And again: "There is very fine pasturage in some parts

\* See Capt. Palliser's General Section maps, which give that altitude to the sources of the Columbia River, the highest point in the three above-named main valleys.

of this valley (Upper Kootenay), and they say that there is hardly any snow on these prairies in the winter, although the cold is severe, so that the horses do not lose their condition even in spring." And again: "The Kootenay Indians possess a wonderful number of horses, and those very superior to the Indian horses on the east of the mountains." And again: "They possess an enormous quantity of very fine horses."

We find three kinds of soil with separate species of vegetation present in the Upper Kootenay Valley. First of all we find that a fine forest vegetation flourishes on the slopes on both sides of the valley, where a mould mixed with sand produces much finer trees than can be seen anywhere east of the Rockies. To let an impartial observer speak, I again quote Captain Palliser's Blue Book report, where, speaking of the Upper Kootenay Valley, we meet with such remarks as the following: "The day's travel, which was through magnificent open forests, with patches of prairie, sometimes of considerable extent. . . . The forests were the finest it had been my good fortune to see. A splendid species of pine, and the larch previously spoken of, with their bright red barks, rose from the ground at ample distances. No brushwood encumbered their feet or offered impediment to the progress of waggons, which might move in every direction." Again, when speaking of the upper portions of the valley, the remark occurs: "The bunch grass is more sparse than turf, but in other respects it was like riding through the open glades of a deer park, and if we had only been supplied with a sufficiency of good food at the time, there are few spots in the country that would have left a pleasanter impression." The report makes frequent mention of the fine forests in the Upper Kootenay Valley, of "forests of noble trees, principally of the pine I have mentioned (*Pinus ponderosa*), and of a gigantic larch (*Larix occidentalis*). I measured one of the former of average size, and found it to be 120 feet in height, and 11 feet in girth at the height of four feet. The larch is a taller and more slender tree, but some I saw were five feet in diameter," while the cedars to which reference is made in another place grow "to a diameter of eight feet," dimensions which, I may add, I have seen very much exceeded.

As a rule the slopes on both sides of the valley shelve off in terrace-like steps, dotted with the forests of which we have just spoken. These "benches" are attractive bits of country, for, as the report goes on to say: "On their level surface a rider can gallop in almost any direction, so free is the forest from underwood. Sometimes the trees are entirely wanting, leaving great tracts of open plain, embosomed in the mountains," and of these latter expanses we have yet to speak, for they are very extensive, and upon them flourishes a remarkably fine growth of the bunch, or buffalo grass, a vegetation upon which the considerable and enduring profits of the newly created Cattle Ranching industry is exclusively based. Upon these grasses the Kootenays have for past ages reared their horses—"beautiful animals, and as wild as deer," as the Blue Book does not tire to call them. Their number, it may be mentioned, has, in the twenty years since the report was written, not increased, though some of the Kootenays, such as Sub-Chief Isidor, who is reported to own 800 head, possess quite large herds, besides some cattle, the good condition of which, as I saw them the two last summers, standing on the meadows along the river, in grass shoulder-high, seemed to manifest the eminent qualifications of the country and of the climate for horse and cattle raising.

The Valley is well watered by the Kootenay River, a fine, but in places shallow stream 300 or 400 feet wide, fed by numerous side streams, that afford good water power, as well as by numerous small lakes, scattered about over the foothill terraces, as if made for pastoral purposes.

Having now briefly described the forests and the grazing lands in this valley, it remains for me to speak of the land in the immediate vicinity of the Kootenay River, i.e., the Meadow, or

#### BOTTOMLAND IN THE UPPER KOOTENAY VALLEY.

These are more or less extensive areas of level land scattered along

the Kootenay River, raised only a few feet over the water level of the river when at its average height. The soil consists in most parts of rich alluvial loam, apparently capable of growing in great abundance any crop of the temperate zone. On my two visits to the Upper Kootenay Valley I saw and inspected some uncommonly fine-looking crops, grown on similar bottomland by a few white settlers and the missionary: wheat (Australian Club), barley, and oats, and what seemed to me even more important, some very fine-looking hops, flax, and a stray patch or two of Indian corn; their flourishing condition pointing to a climate suitable to those important crops. To fruit-growers the Upper Kootenay Valley will be an attractive region, for the absence of summer frosts, which prove so disastrous to the growth of fruit east of the Rockies, ensures them here success. From what I saw of some very fine potatoes, tomatoes, and peas, and the further no less corroborative circumstance that the Indians subsist, to a great extent, on berries and wild fruit, of which a great variety exists, I should say that this valley and the Lower Kootenay Valley will become the fruit garden of the West, having ready and remunerative markets in the vast but fruitless American and British North-West.

Upon these bottomlands there is at present a rankly luxurious growth of wild grass. In extent they presumably cover 22,500 acres. Every few years they are subject to a more or less serious overflow, caused by the rising of the Kootenay River during the freshest season, chiefly in June. Now and again the overflow assumes such formidable proportions as would destroy all agricultural development of these very rich lands, so that to make these tracts permanently available for the farmer, the overflow will have to be prevented once for all. With a view to encourage the undertaking, which is in many ways favoured by Nature, the Government of British Columbia was induced to grant to the Kootenay Syndicate (Limited), of London, a favourable concession in the shape of a partially free grant, not only of these bottomlands, but also of those more extensive ones in the Lower Kootenay Valley.

Briefly stated, the reclamation of these lands, or rather the prevention of the overflow, consists in deviating the dangerous freshest waters coming down from the Rocky Mountains from the Kootenay River into the Upper Columbia Lake by means of a canal provided with gates or other means to regulate the outflow from the Kootenay River, for in order to preserve the navigable character of this waterway during its entire course through the Upper Kootenay Valley, the volume of water at ordinary stages must not be reduced. At the spot where it is proposed to construct this canal a very singular hydrographical configuration exists. Here, as can be seen by a glance on the map, the Kootenay River approaches the Upper Columbia Lake, which is the source of the Columbia River, to within what one might almost call rifle-shot distance, the actual distance from water to water being at one point a mile less a few yards, the water level of the Kootenay River being at this precise spot about 11 feet higher than the lake. The intervening strip of land is an apparently perfectly level stretch of washed gravel, overlaid by a thin coat of soil, upon which a scattering growth of trees subsists, the incline towards the lake being so gentle as to be hardly perceptible. At no point along the Canal route is the surface more than three feet over the level of the river at high water; and, as Mr. Munroe Miller, in his "Resources of British Columbia," quite correctly says, "so nearly is the Kootenay River on a level with the waters of the Upper Columbia Lake, that a plough furrow would carry the water across the mile or two of thinly-timbered meadows from the Kootenay to the head of the Columbia."

There is every reason to suppose that in past ages the Kootenay River branched at this spot, a portion of its water flowing over this flat, while to speak of more recent times we have proof that not longer than forty years ago the water, during big freshets, actually found its way from the Kootenay River into the Columbia Lake over this mile strip. The well-known missionary, De Smet, who first visited this spot as early as 1845, speaks of this in one



of his letters published in his "Oregon Missions." It is dated "Head of the Columbia River, 9th September, 1845," and he says: "The first lake of the Columbia (Upper Columbia Lake) is two miles and a-half distant from the river Des Arcs-a-plat (Kootenay), and receives a portion of its water during the great spring freshet. They are separated by a bottom-land." The accurate measurements of a competent English civil engineer and the presence of an arm of the lake have reduced the distance to less than one-half, at a spot to which De Smet's attention had probably not been drawn.

A singular play of Nature, confirming a former connection between the two waters may be mentioned as a not uninteresting feature of the country. It is the presence of large numbers of the true though land-locked salmon in Kootenay Lake, a large deep lake into which salmon cannot now ascend, falls, forty feet high, occurring in the only waterway connecting it with the Columbia and the sea. As is well known, millions of salmon ascend, during the spawning season, the Columbia River, right up to the head lake, a wonderful journey over 1200 miles in length. The progenitors of the present land-locked salmon in Kootenay Lake, it is safe to assume, must have gained access to the Kootenay River and then down it to Kootenay Lake, at a period when the waters of the Kootenay and Columbia Rivers were yet in communication at the point where the canal will restore connection. Of this spot, now called the Canalflat, De Smet, in the same letter from which we have just quoted, proceeds to say: "The advantages Nature seems to have bestowed on the source of the Columbia will render its geographical position very important at some future day, and when emigration shall have penetrated, the source of the Columbia will prove a very important point. The climate is delightful, the extremes of heat and cold are seldom known. The hand of man would transform it into a terrestrial Paradise."

The Climate is a bracing and healthful one: early springs, warm summers free of frosts, fairly short and fairly cold winters with little snow. Cattle and horses usually winter out, but with the introduction of better stock some provision will have to be made, for it appears that every seven or eight years severe winters occur. It is generally acknowledged that the month of March is the most trying month for stock wintering out without shelter or fodder. From an English gentleman, Colonel James Baker, who settled in the Upper Kootenay Valley last year, I obtained the following carefully kept temperatures for the latter part of the winter 1884-5, a season which was an uncommonly severe one in many parts of the West. Thus in the cattle country in Wyoming in the first week in March, 1885, the thermometer was low down in the forties below zero and a fierce wind blowing, while in Upper Kootenay, on account of its sheltered position, there is no wind in winter, and owing to its elevation being some 3500 or 4000 feet lower than most parts of Wyoming, no less than to its comparatively close neighbourhood to the warm currents of the Pacific, the coldest at the same period was only 14 Fahr. a difference of some 60 degrees, and yet it is quite 500 miles north of the great centres of the cattle raising industry of Wyoming.

#### SOME WINTER TEMPERATURES IN THE UPPER KOOTENAY VALLEY.

		Half-hour before Sunrise.	At Noon in the Shade.	Half-hour after Sunset.
		Fahr.	Fahr.	Fahr.
February	25	26	51	33
"	26	33	50	28
"	27	30	46	28
"	28	26	46	26
March	1	26	43	34

		Half-hour before Sunrise.	At Noon in the Shade.	Half-hour after Sunset.
		Fahr.	Fahr.	Fahr.
March	2	28	47	20
"	3	20	43	22
"	4	28	43	25
"	5	14	41	22
"	6	18	43	30
"	7	26	47	30
"	8	20	45	28
"	9	20	43	32
"	10	33	47	28
"	11	28	54	28
"	12	30	54	28
"	13	30	57	26
"	14	26	55	30
"	15	30	53	36
"	16	38	55	26
"	17	26	55	24
"	18	24	55	26
"	19	20	57	28
"	20	24	57	34
"	21	36	55	25
"	22	20	42	26
"	23	22	52	28
"	24	22	50	26
"	25	22	56	33
"	26	28	55	28
"	27	26	53	26
"	28	24	57	34
"	29	33	63	33
"	30	32	66	30
"	31	24	67	44

There were, in December and January, three very cold spells, each lasting about three days. On the 10th May occurred the last night frost.

**Early Springs.**—Of these another Book, this time an American one, in the shape of "Reports of Explorations and Surveys made under the direction of the Secretary of War, and presented to the Senate of the United States in 1853—1," gives (vol. I., page 522) some interesting details. In Captain Muller's report, when speaking of his arrival in the mouth of April at the Kootenay River, not far from the international boundary line, that afterwards celebrated traveller says: "The grass here is exceedingly rich and luxuriant. At the point where we struck the river (Kootenay) we found it to be 400 yards wide, and flowing through low banks with a gentle current. The country on its left bank forms an immense low prairie bottom, in which the grass grows luxuriantly; this extends to the base of the mountains on the east. The country on the right bank, at the same place, is formed by a series of pine-clad hills that extend to the mountains of the north, which latter are very high, their snow-capped summits seeming lost in the clouds. The soil along the Kootenay River is very fertile, and at the point where we struck it (April 26th, 1854) it was carpeted by a beautiful green sward, upon which was growing an exceedingly great number of beautifully-coloured and varied plants. This place is a great resort for the Kootenay Indians when not hunting in the mountains, as here is found at every season an abundance of excellent, nutritious grass. The winters are represented as being mild, and the waters of the Kootenay River afford them at all seasons a bountiful supply of the salmon trout."

**Markets and Transportation.**—The geographical position of the Upper Kootenay Valley favours future facilities for transportation and communication. It lies between the two great railway systems of the north, being about equidistant from the Canada Pacific and the Northern Pacific Railways. With the former it communicates by the Columbia River, which is a navigable stream

from its very source—i.e., the Upper Columbia Lake—to Golden City, the nearest station on the Canada Pacific, a distance of 105 or 110 miles, steamers being able to land and take in goods at the Canal Flat, where a site for a steamboat landing has already been selected, though at one point some work to remove snags and deepen a sand bar will have to be done before steamers can enter the uppermost lake. This the Dominion Government propose to carry out at an early date, an engineer, so I am informed by the Minister of Public Works, having already been dispatched thither.

The Upper Kootenay River, from the proposed canal down to the boundary line, is navigable for sternwheel steamboats drawing little water, so that when the two rivers have been connected, direct communication from the farms along the Upper Kootenay to the Canadian Pacific Railway will be possible, for it is the intention to make the canal navigable, so that no trans-shipment will be necessary.

The Northern Pacific, about 150 miles to the south of the valley, is approached over undulating open prairie ground, a natural road for waggons or cattle, so that the future cattle-raiser or farmer in the Upper Kootenay Valley has the choice of two markets, and, what is quite as important, the choice of two great trans-continental railways for the transportation of his produce, an important and effectual preventative against the arbitrary high freight rates so usual in the west in the absence of competing lines.

Until last year, owing to its isolated position, farming was very much neglected in the valley, the mineral resources occupying almost exclusively the attention of permanent or temporary residents. To show what can be done, I may mention that one of the settlers who two years ago started a small farm close to the Canal Flat, raised 50,000 lbs. of potatoes on little more than 2 acres of land. 5,000 lbs. he sold in the ground at 2½d. a pound, the rest fetching from 1½d. to 3½d. a lb., so that his two-acre potato patch realised him about £500. Colonel Baker raised this year 42,000 lbs. on less than 2 acres of land on which potatoes had been grown for nine years running without manure. Beef fetches 6½d. a pound, while pork is eagerly bought up by the Chinese miners at from 10d. to 1s. a lb. live weight. Butter cost 3s. a lb. and eggs 4s. a dozen, so that a large margin of profit rewards the farmers.

Hitherto gold mining has been almost the sole industry in the Upper Kootenay Valley. At one time there were several thousand miners in the Upper Kootenay Valley, and one stream alone (the famous Wildhorse Creek) yielded, so good authorities report, two million dollars in two summers. In those days, however, everything had to be transported 500 miles on horseback over miserable mountain trails. Flour cost 4s. to 6s. a lb., and other things in proportion, while common labour was paid for at the rate of £2 to £3 a day, so that only the very richest deposits could be worked with profit. To-day very different conditions prevail, what with reasonable wages and direct communication with the railway, there is little doubt concerning the future of its mines. Good judges pronounce the Kootenay district as being to-day the most promising-looking mineral country they know, a view fore-shadowed by Palliser's Blue Book in which the very competent geologist of the expedition, Dr. Hector, says in his report to Sir Roderick Murchison, Director-General of the British Geological Survey: "*There is no reason to doubt that the triangular region north of the boundary line, and drained by the waters of the Upper Columbia and Kootenay Rivers, will be overrun by 'prospectors,' and then by active gold miners.*" The Government Gold Commissioner for Kootenay district in his official report for the year 1884, says that 184 mineral claims (gold and silver) were located in Kootenay and registered in his office in the twelve months, while the output of gold from one single stream was during the same period £7400. He strongly impresses upon the Government the necessity of establishing an Assay Office "in view of the prospect that quartz mines (gold and silver) would be extensively developed during the season of 1885."

It may be as well to draw attention here to an extremely abrupt climatic change which occurs in the Upper Columbia Valley, about 25 or 30 miles down the river from its source, a change which is

pointed out by the Blue Book and by all the travellers that have published records of their visit. We find, therefore, that Golden City on the Canadian Pacific Railway is already in the moist, densely forested, and snowy zone. A day's ride south of it the bunch-grass, always an indication of a dry climate, commences, and in the Upper Kootenay Valley there is ordinarily just sufficient rain and little snow, while the forests partake more the character of parks.

Having glanced at the position, local features, and possible future of the Upper Kootenay Valley, we will do the same with the

### LOWER KOOTENAY VALLEY.

To understand its position, we must first of all follow the erratic course of the Kootenay River, when, after crossing the international boundary line and entering first Montana and then Idaho Territory, it temporarily expatriates its waters from British soil. While flowing through United States Territory one fall and several rapids impede navigation of this part of the river. The former, the only insurmountable obstacle, occurs at the elbow or southernmost point of the great bend where the river forces its way through the Purcell range, as the southern extremity of the Selkirk range is called. Long before the river regains British territory it leaves its gloomy gorges and enters, as if as a reward for its patriotic intentions, the Lower Kootenay Valley, a broad sunny valley terminating in Kootenay Lake.

Here the character of the stream undergoes as great a change as its surroundings. The turbulent mountain torrent is suddenly metamorphosed into a stately slow-flowing river, of a very considerable depth, averaging 45 feet, and about 600 to 700 feet in width, winding in immense loops through the broad, almost perfectly level valley. The river banks are throughout lined with a fringe of stately elm or cottonwood trees and alder thickets from 100 to 200 yards in width, leaving the rest of the valley perfectly treeless, huge expanses of waving grass that attains in September a height of four to eight feet. These meadows merge on both sides of the valley into pine-clad hills and mountains that rise from the level pastures in picturesque slopes to a height of from 1500 to 5800 feet. While the Lower Kootenay River, following its sinuities, is quite 100 miles long, the valley it forms is but 65 miles in length, the stream being a remarkably tortuous one. There is no doubt, in view of the surroundings, that the whole valley land is, geologically speaking, of recent formation. It was once part of Kootenay Lake, but has been gradually filled up with the alluvial deposits and vegetable mould, the denudation swept down from the main chain of the Rockies by the river, and deposited in layers on the flats by the annual freshets.

From Bonner's Ferry, the beginning of the valley, to the Kootenay Lake, the soil is apparently of uniform composition, an amazingly fertile silicated clay sandy-loam, mixed with the annual self-maturing deposits of its perennial vegetation. During low water the annual layers can be easily observed on the exposed and very steep river banks. Its composition ensures great productiveness, and the hastiest examination of the vegetation to be found, of course at present in a perfectly wild state, on this land, shows an almost tropical luxuriance. The depth to which this composition extends must be very great, for our careful soundings of the river, displaying, as it does, a remarkable uniformity of depth—40 to 60 feet—proved to us that the bottom of the river consists of precisely the same material. So richly charged with this silt is the water of the river during the freshets, where it emerges from the rocky gorges above Bonner's Ferry, that a cupful will deposit in a short time a thin film of silt on the bottom of the vessel.

It is not uninteresting to note that even so unemotional and veteran a traveller as Sir George Simpson gives space to warm admiration of the Lower Kootenay Valley, "*a little paradise,*" as he calls it, in his "*Narrative of a Journey round the World.*" Looking down from a promontory overlooking a part of the valley, he writes: "*At our feet lay a valley . . . bounded on the western side by lofty mountains, and on the eastern by a lower range of the same kind, while the verdant bottom, unbroken by a single mound or hillock, was*

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*threaded by a meandering stream and studded on either side with lakes, diminishing in the distance to mere specks or stars. In the immediate neighbourhood was a standing camp of the Kootenays, beautifully situated within a furlong of the river. An amphitheatre of mountains, with a small lake in the centre, was skirted by a rich sward, of about half-a-mile in depth, on which were clumps of as noble elms as any part of the world could produce. Beneath the shade of these magnificent trees the white tents were pitched, while large bands of horses were quietly grazing on the open glade. The spot was so soft and lovely that a traveller, fresh from the rugged sublimities of the mountains, might almost be tempted here to spend the remainder of his days amid the surrounding beauties of Nature."*

**Bottomland in the Lower Kootenay Valley.**—The fact that the soil in this valley is all made land, explains sufficiently the perfectly level character of the surface, enclosed on both sides by timbered hills; so that in receiving a grant from the British Columbia Government of the bottomland, we have in this instance received ALL the land in that part of the valley which is north of the 49 N. lat. the boundary line between the province and Idaho Territory. Unfortunately, more than half of the Lower Kootenay valley is American territory, lying south of the line, between it and Bonner's Ferry, and can, of course, not be included in this arrangement with the Government of British Columbia. The block of land of which we have received control in this valley contains about 46,000 acres of bottomland, all of the same uniform rich soil; and, in addition, some 2525 acres of good timber land adjoining the river, and rising from it to an elevation of several hundred feet, the presence in this forest of a side stream with good water power enhancing the future value of this acquisition.

The vegetation on the bottomland, to return briefly to this important point, is, as I have said, of great luxuriance, the surest indication, perhaps, being the large growth of "tullies," a marsh plant, which, as extensive draining experiments in California have proved, grows, so it is reported, only where very rich soil prevails. There are four principal species of grass to be found on the land—the swamp grass, the blue joint, the red-top, and a species of canelike grass which grows to a height of 14 feet. Of the better classes of wild grass, at least 3 tons can be cut per acre. With a small mowing-machine and a pair of horses, a man and a boy in my employ cut 24 tons in two and a half days, off a patch of ground certainly not exceeding 7 or 8 acres. There also grow an abundance of wild flowers, wild and tame thyme growing most profusely, peavine, and in the thicket fringing the stream several species of wild berry bushes. None of these plants seemed to have suffered by the temporary inundation to which they had been exposed.

That the soil is suitable for cereals was proved to us by finding so early as July 25th a patch of Australian Club wheat of good quality, four feet high, the ears being well developed and nearly ripe. It was growing on the river bank, and had probably sprung from some stray seeds dropped by Indians. Potatoes, Indian corn, tomatoes, and tobacco, planted by settlers and Indians on land not subject to overflow, seem to thrive capitally. On apparently similar alluvial land on the Lower Fraser River (British Columbia), and on some other in Washington Territory, astonishing crops are raised, of which we have authentic information: sugar beet, 240 bushels to the acre; hops, 2500 lbs. per acre; potatoes, 10 tons per acre; wheat, from 50 to 80 bushels, turnips, 50 tons, per acre, single bulbs, frequently weighing up to 36 lbs., and occasionally as much as 52 lbs. each.

There are, I noticed, throughout the Kootenay Valley unusually heavy night dews, a very important feature should the land be drained. Mosquitoes are for about six weeks (end of June to middle of August) very bad on the river lands in the Lower Kootenay Valley, but there are none on the lake, and none to speak of in the Upper Kootenay Valley. The drainage of the land would, as experience in other places has shown, do away with these pests.

It is needless to point out that, notwithstanding the remoteness,

up to recent days, of the attractive Lower Kootenay Valley, it would long have been settled, and the fertile soil brought under cultivation, were it not for the heavy overflow which almost annually occurs there (June and July), and which makes agriculture on these lands at present impossible. It is caused by the rising of the Kootenay Lake and River, which again is brought about by a curious feature—namely, the narrowness of the single outlet the Kootenay Lake possesses, (which flows into the Columbia River,) and through which, in the months of May and June, the water cannot flow off fast enough. In early spring the mountains round the lake shed their snow-water first, then comes the water from the mountains of the valley, and by the time the vast quantities of snow in the main chain of the Rockies begins to melt, the lake has risen some six or eight feet, the outlet being too narrow to master the vastly increased inflow; so that, by the time the late snow-water comes pouring down the river, the lake is full, and the incoming volume is backed up; a circumstance distinctly proved by the fact that the land nearest the lake is first overflowed, and remains under water longest; also by the fact that the water level of the lake commences to fall four or five days after the river has reached the same stage at Bonner's Ferry at the head of the valley—the two respective dates in the year 1883 being the 1st July and the 25th June.

The rise of the river, and therefore the overflow, is not the same every year. In 1883, 1884 and 1885 it was not so serious as in other years. Thus in 1882 there was on some of the low lying bottomland for a few days a depth of 8 feet of water, while in 1884 there was only as many inches, while this year (1885) there was hardly any water on the same land. On most of these meadow flats the water drains off as quickly as it rises; on one or two of the lower ones it remains longer.

There are two remedies to prevent the overflow of this bottomland. One is to dyke the land along the river bank by throwing up a low embankment, the material for which is of course right on the spot, while the absence of any violent current in the river allows the cheapest possible construction. The height of the dam need presumably not exceed four or five feet, for the natural bank is without any exception raised a few feet over the rest of the meadow land behind it, a circumstance explained by the fact that in those years when the river does overflow the banks, the sediment with which at that season the water is so heavily charged is at once precipitated to the bottom, a process of dam building in which Nature has indulged, probably, since the commencement of the metamorphosis of this portion of Kootenay Lake. A more radical and under circumstance more economical remedy consists in the widening and deepening of Kootenay Lake outlet at two points, to allow the freshest water to escape as fast as it pours into the lake. Also in this direction does Nature favour our proposed undertaking. At one time, it is probable, the outlet was of sufficient capacity to take off the inflow as fast as it came in, however vastly increased it might be in spring, and, equally probably, would have continued so had not, just at the two narrowest parts, two side streams, (turbulent mountain torrents,) accumulated, at their mouths, in the course of ages, fan-shaped bars of boulders and gravel, washed from the impending heights by the action of the streams. The work, therefore, consists in the removal of a portion of these bars, an undertaking which will not be comparatively costly when once the necessary appliances can be got to the spot, without unreasonable expense. The narrowed spaces are less than 400 yards long, and only a portion of the bars will have to be removed, adjoining flats being handy dumping-places for the moved material.

**The Climate** is on the whole very like that of Upper Kootenay. Summer frosts are, it is generally reported, quite unknown in both the Kootenay Valleys. In 1883 the first night frost occurred on the 16th September; in the year 1884 the first was three days earlier. The summer heat is perhaps a trifle greater than in the more elevated valley; for it is equally well sheltered, and has a lower altitude—1750 feet.

Kootenay Lake never freezes, but the river, at that season with



no perceptible current in it, does freeze, usually about end of November, breaking up again about middle of March. By the 1st April green grass appears.

**Means of Access to the Lower Kootenay Valley.**—For a couple of years to come, until the short railway down the Kootenay Lake outlet, to build which some Californian capitalists have received a considerable conditional grant of timber and mineral land in this district from the British Columbian Government, the Lower Kootenay Valley will remain tributary to the Northern Pacific Railway, for northward from Kootenay Lake the approach to the Canadian Pacific line is rendered somewhat difficult by the rugged character of the intervening mountains. The Lower Kootenay Valley naturally opens towards the south, a twenty-five miles wide strip of forested country being all that intervenes between Kootenay River and the former railway. An American Company have built this year, at an expenditure, it is said of £6000, a waggon road (toll road) from the Northern Pacific Railway to the Kootenay, to enable them to transport ore from their mines on Kootenay Lake to the railway. They also propose to erect smelting works next year on the lake.

The mineral outlook in the Lower Kootenay is a promising one, but not in the same direction as in Upper Kootenay. There are few gold mines in that valley, but on Kootenay Lake there are deposits of silver bearing lead (galena). Their development will call for smelting and reduction works, means of cheap transportation, increased trade, and necessitate the steady employment of large numbers of miners.

These argentiferous lead deposits on Kootenay Lake, expert judges pronounce to be of an unusual size, though the contents of silver in the ore is, in comparison to some other mining regions in the States, not so very great, making cheap transportation to the railways a matter of importance. These increased facilities for traffic, such as (1st) The proposed branch railroad from the Northern Pacific system to Bonner's Ferry, on the Kootenay River, (2ndly) The 25 miles long railway down Kootenay Lake outlet, the only piece of unnavigable water between Bonner's Ferry and the Canada Pacific system, and the establishment of a steamer connection between these points and (3rdly) The establishment of steamer navigation on the Lower Kootenay River (only four small steamers were running on the river this year) will, it is to be presumed, soon create a flourishing mining community, so that settlers on the reclaimed bottomland in this valley will be able to make a good living by supplying the growing wants of this mining population, making them, probably, quite independent of other more distant markets.

#### VALUE OF THE BOTTOMLAND IN THE UPPER AND LOWER KOOTENAY VALLEYS.

As is well known, there is not very much agricultural land in British Columbia, but, however limited in extent, it is excellent in quality. Two circumstances make it far more valuable than is equally good land east of the Rocky Mountains. First of all the presence of good local markets; and secondly, but more importantly, the good climate, which enables the farmer to raise far more valuable crops than can be produced among the rigorous climatic conditions in the exposed regions of Eastern Canada, making it possible for him to net often more from ten acres in British Columbia than he could from a hundred acres in the Atlantic provinces.

To arrive at a just estimate of the future value of this Kootenay land when reclaimed, it must be compared to equally rich land—there are but few tracts of such rich soil—situated in other parts of British Columbia, or in the adjacent Washington Territory, land similarly favourably situated on the banks of a fine navigable river, with an equally promising future market (mines, it is well known, furnish very desirable customers), and above all, favoured by equally good climatic conditions. Thus the hop-growers of Washington Territory have netted, according to the official report of the Governor of the Territory, on an average taken during the last twelve years, over £26 per acre per annum clear profit, the figures being as follows: average yield per acre of hopland, 1600 lbs.; average cost of growing and harvesting, 3d. a lb.; average price they received, 9d. a lb. Hence unimproved hopland in these localities cannot be bought under from £5 to £10 per acre, while improved hopland fetches double or three times that price.

Washington Territory sends its fruits by the train-load to the Eastern States and to Canada, while California exports annually over £2,000,000 worth of grapes, pears, peaches, and vegetables.

From British Columbia an equally important fruit trade with the East of Canada and Europe is certain to spring up now that the Canadian Pacific Railway furnishes the necessary means of transportation, which hitherto did not exist; and as the Kootenay Valleys are the most eastern points in the province, their produce will be so much nearer to markets. Canada, so authorities affirm, imports almost every pound of hops used in the country, notwithstanding a duty of 3d. a pound, a duty which will protect the hop-grower of British Columbia against competition from the United States.

The Kootenay District can be reached in ten days from Liverpool by the Canadian Pacific Railway, and the through fare (emigrant) is £10 from Liverpool to Golden City.

Taking all these circumstances into consideration one may well express the anticipation that the value of this reclaimed land will be a considerable one; good and entirely unprejudiced judges expressing the opinion that it will be worth, and easily fetch, from six to nine times the estimated cost-price of 13 or 14 shillings per acre, an opinion with which Mr. Ashdown Green, C.E., who has lived on the Pacific coast for twenty years, more than agrees, for in his report he says he sees no reason why these tracts should not fetch from £8 to £10 per acre.

Letters upon the Kootenay country have appeared in the "Field," August 30th, 1884, April 25th, May 9th, November 21st, December 20th, 1885, and an account of British Columbia in the "Fortnightly Review" of January, 1886.

For reports on Kootenay by Mr. ASHDOWN GREEN, C.E., Surveyor to H.M.'s Indian Commissioner for British Columbia, and Mr. LESLIE C. HILL, Assoc. Mem. Inst. C.E., with plans of the works, apply to MESSRS. WITHERBY & Co., 74, Cornhill, E.C.

To give an idea of the rapidity with which the Kootenay District has, owing to late mineral discoveries and the construction of the Canadian Pacific road, leaped into prominence, I may mention that in 1882 when I visited Northern Idaho for the first time, Kootenay was almost an absolute wilderness, for its approaches were all but impenetrable. In that year there were only about 15 resident white men in the entire Kootenay district; in 1883 they had increased to 200; and the following to 3500, while this year that number was quite doubled. The greater proportion of these men were employed on the Canadian Pacific Railway. Now that the line is completed, of course, many will be looking for farms or occupation with farmers and other labour-employing men. At one bound, while furnishing the settlers with means of communication and transportation of their produce, the hitherto serious labour question will be solved. In 1883 I had to pay 14s. and more a day for ordinary labour, this year I could get it at from 4s. to 6s. and next year it will probably be yet lower, while Chinese labour, (the best for earthworks), of which there is ample supply, is cheaper than even European rates.

**The Kootenay Indians**, who live in both valleys, are subdivided into the Lower and Upper tribe, each having its separate chief. They are very peaceable and intelligent Indians, missionaries having converted them thirty or forty years ago. From what I have seen of them I judge that their presence will do away with many of the difficulties consequent upon scarcity of labour, thus for hop-picking their presence and innate handiness would prove invaluable. In the hopyards of the adjoining Washington Territory, Indians have up to lately been exclusively employed and given general satisfaction. My own experience with the Kootenay Indians was always of a most satisfactory nature. I found them good and willing workers. Up to 1884 they roamed at will over the whole district, but in that year a Government commission laid out suitable reserves for their exclusive use. From the official census taken on that occasion it appears that the Upper Kootenay Indians owned 2511 horses and 618 head of cattle.

Portions of their reserves include land which the proposed reclamation will reclaim from overflow, and when referring to such a part, Honbl. P. O'Reilly, the Government Indian Reserve Commissioner, says, in his Official Report to his Government:—"Should the reclamation scheme in the hands of Mr. W. A. Beattie-Graham (and which is encouraged by the Local Government), prove a success, this low stretch of bottomland may become of considerable value;" and of another, "Should the Kootenay reclamation scheme be carried out, the whole 1200 acres could be brought into cultivation, and would, I believe, prove a valuable piece of land."

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